

WE CLAIM:

1. A method of isolating hepatoblasts from embryonic or neonatal liver comprising:

(a) preparing a single cell suspension of embryonic or neonatal liver cells;

(b) panning said suspension utilizing antibodies specific for hemopoietic cells, including red blood cells, endothelial cells or other mesenchymal cells so as to remove hemopoietic cells, including red blood cells, endothelial cells and other mesenchymal cells from said suspension; and

(c) performing fluorescence activated cell sorting utilizing said antibodies so as to remove hemopoietic cells, including red blood cells, endothelial cells and other mesenchymal cells from said suspension and performing multiparametric fluorescence activated cell sorting on said suspension utilizing at least one antibody to a hepatic cell marker, side scatter, forward scatter and/or autofluorescence such that the cells remaining in said suspension are isolated hepatoblasts.

2. The method of Claim 1 wherein the antibody specific for hemopoietic cells is a monoclonal antibody.

3. The method of Claim 2 wherein said monoclonal antibody is OX-43 and/or OX-44.

4. The method of Claim 1 wherein the antibody to a hepatic cell marker is monoclonal antibody 374.3.

5. The method of Claim 1 wherein said hepatic cell marker is OC.3.

6. The method of Claim 1 wherein said single cell suspension contains an agent capable of removing calcium from liver cell surface.

7. The method of Claim 1 wherein said single cell suspension contains EGTA.

8. The method of Claim 1 wherein said single cell suspension contains an enzyme capable of dissociating liver cells.

9. The method of Claim 1 wherein said single cell suspension contains collagenase.

10. The method of Claim 1 wherein said single cell suspension is chilled.

11. The method of Claim 1 wherein said single cell suspension is at a temperature of between about 2 and 20°C.

12. Hepatoblasts isolated by the method of Claim 1.

13. A method of isolating hepatoblasts from adult liver comprising:

(a) preparing a single cell suspension of adult-  
liver cells;

(b) panning said suspension utilizing antibodies  
specific for mature hepatocytes, mature bile  
duct cells, endothelial cells and  
mesenchymal cells so as to remove mature  
hepatocytes, mature bile duct cells,  
endothelial cells and mesenchymal cells from  
said suspension; and

(c) performing fluorescence activated cell  
sorting utilizing said antibodies so as to  
remove mature hepatocytes, mature bile duct  
cells, endothelial cells and mesenchymal  
cells from said suspension and performing  
multiparametric fluorescence activated cell  
sorting on said suspension utilizing  
antibody to a hepatic cell marker, side  
scatter, forward scatter and/or  
autofluorescence such that the cells  
remaining in said suspension are isolated  
hepatoblasts.

14. The method of Claim 13 wherein the antibody to a  
hepatic cell marker is monoclonal antibody 374.3.

15. The method of Claim 13 wherein the hepatic cell  
marker is OC.3.

16. The method of Claim 13 wherein the single cell suspension contains an agent capable of removing calcium from the surface of liver cells.

17. The method of Claim 13 wherein the single cell suspension contains EGTA.

18. The method of Claim 13 wherein the single cell suspension contains an enzyme capable of dissociating adult liver cells.

19. The method of Claim 13 wherein the single cell suspension contains collagenase.

20. The method of Claim 13 wherein the single cell suspension is chilled.

21. The method of Claim 13 wherein the single cell suspension is at a temperature of between about 2 and 20°C.

22. Hepatocytes isolated by the method of Claim 13.

23. A method of treating liver dysfunction comprising the administration of hepatoblasts.

24. The method of Claim 23 wherein the administration comprises injecting said hepatoblasts into the liver via a vascular vessel.

25. The method of Claim 23 wherein the administration of comprises injecting said hepatoblasts into an ectopic site.

26. The method of Claim 23 wherein the administration comprises injecting said hepatoblasts into an ectopic site of the spleen.

27. The method of Claim 23 wherein the hepatoblasts-  
are isolated by the method of Claim 1.

28. The method of Claim 23 wherein the hepatoblasts  
are isolated by the method of Claim 13.

29. A method of forming an artificial liver  
comprising the utilization of hepatoblasts with a bioreactor.

30. The method of Claim 29 wherein the hepatoblasts  
are isolated by the method of Claim 1.

31. The method of Claim 29 wherein the hepatoblasts  
are isolated by the method of Claim 13.

32. A method of forming an artificial liver  
comprising the utilization of hepatoblasts in a culture  
apparatus.

33. The method of Claim 32 wherein the hepatoblasts  
are isolated by the method of Claim 1.

34. The method of Claim 32 wherein the hepatoblasts  
are isolated by the method of Claim 13.